REMARKS/ARGUMENTS

Claims 32-37 are pending in this Application. By this Amendment, Applicants have canceled claims 1-31.

Applicants have also filed an Information Disclosure Statement to cite a co-pending application 10/381,412 that includes relevant subject matter. Applicants respectfully request that the Examiner consider this application and initial the PTO Form 1449 included with the IDS to indicate his consideration of same.

In response to the Restriction Requirement included in the outstanding Office Action, Applicants affirm the election of Claims 32-37 for prosecution in the present application. Applicants reserve their right to prosecute Claims 1-31 in a Divisional Application.

Claims 32-37 were rejected under 35 USC § 103(a) as being unpatentable over Yajima et al. (U.S. Patent No. 5,049,208). Claims 32-37 were rejected under 35 USC § 103(a) as being unpatentable over Ma et al. (U.S. Patent No. 6,332,933) in view of Yajima et al. Applicants respectfully traverse the rejections of claims 32-37.

Claim 32 recites:

> "A rapidly solidified alloy having a composition represented by the general formula: $(Fe_{1-m}T_m)_{100-x-y-z-n}Q_xR_yTi_zM_n$, where T is at least one element selected from the group consisting of Co and Ni; Q is at least one element selected from the group consisting of B and C; R is a rare earth element; and M is at least one element selected from the group consisting of Al, Si, V, Cr, Mn, Ni, Cu, Zn, Ga, Zr, Nb, Mo, Hf, Ta, W, Pt, Pb, Au and Ag, the mole fractions x, y, z, m and n satisfying the inequalities of:
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> $10 \text{ at\%} < x \leqq 20 \text{ at\%}$;
>
> $6 \text{ at\%} \leqq y < 10 \text{ at\%}$;
>
> $0.5 \text{ at\%} \leqq z \leqq 6 \text{ at\%}$;
>
> $0 \leqq m \leqq 0.5$; and
>
> $0 \text{ at\%} \leqq n \leqq 5 \text{ at\%}$, respectively,
>
> wherein the alloy has a thickness of between about 50 μm and about 200 μm, and
>
> **wherein in the alloy, a crystal structure is located on each of two surfaces thereof that cross a thickness direction approximately at right angles**." (emphasis added)

Claim 36 recites:

"A rapidly solidified alloy having a composition represented by the general formula: $(Fe_{1-m}T_m)_{100-x-y-z-n}Q_xR_yTi_zM_n$, where T is at least one element selected from the group consisting of Co and Ni; Q is at least one element selected from the group consisting of B and C; R is a rare earth element; and M is at least one element selected from the group consisting of Al, Si, V, Cr, Mn, Ni, Cu, Zn, Ga, Zr, Nb, Mo, Hf, Ta, W, Pt, Pb, Au and Ag, the mole fractions x, y, z, m and n satisfying the inequalities of:

$10 \text{ at\%} < x \leqq 20 \text{ at\%}$;

$6 \text{ at\%} \leqq y < 10 \text{ at\%}$;

$0.5 \text{ at\%} \leqq z \leqq 6 \text{ at\%}$;

$0 \leqq m \leqq 0.5$; and

$0 \text{ at\%} \leqq n \leqq 5 \text{ at\%}$, respectively,

wherein the alloy has a thickness of between about 60 μm and about 150 μm, and

wherein the alloy has a recoil permeability of between about 1.1 and about 2." (emphasis added)

Claim 37 recites:

"A magnet powder having a composition represented by the general formula: $(Fe_{1-m}T_m)_{100-x-y-z-n}Q_xR_yTi_zM_n$, where T is at least one element selected from the group consisting of Co and Ni; Q is at least one element selected from the group consisting of B and C; R is a rare earth element; and M is at least one element selected from the group consisting of Al, Si, V, Cr, Mn, Ni, Cu, Zn, Ga, Zr, Nb, Mo, Hf, Ta, W, Pt, Pb, Au and Ag, the mole fractions x, y, z, m and n satisfying the inequalities of:

$10 \text{ at\%} < x \leqq 20 \text{ at\%}$;

$6 \text{ at\%} \leqq y < 10 \text{ at\%}$;

$0.5 \text{ at\%} \leqq z \leqq 6 \text{ at\%}$;

$0 \leqq m \leqq 0.5$; and

$0 \text{ at\%} \leqq n \leqq 5 \text{ at\%}$, respectively,

wherein the powder has a mean particle size of between about 60 μm and about 110 μm, and

wherein a ratio of a major-axis dimension of the powder to a minor-axis dimension thereof is between about 0.3 and about 1, and

wherein the powder has a coercivity H_{cJ} of about 600 kA/m or more." (emphasis added)

Applicants' claim 32 recites the feature of "wherein in the alloy, a crystal structure is located on each of two surfaces thereof that cross a thickness direction approximately at right angles." Applicants' claim 36 recites the feature of "wherein the alloy has a recoil permeability of between about 1.1 and about 2." Applicants' claim 37 recites the features of "wherein a ratio of a major-axis dimension of the powder to a minor-axis dimension thereof is between about 0.3 and about 1" and "wherein the powder has a coercivity H_{cJ} of about 600 kA/m or more." With the improved features of claims 32, 36, and 37, Applicants have been able to provide a permanent magnet that achieves a coercivity H_{cJ} that is high enough to actually use the magnet in various applications (e.g., $H_{cJ} \geqq 600$ kA/m) while maintaining a remanence B_r of about 0.8 T or more (see, for example, the paragraph no. 10 on page 5 of the Specification).

Applicants agree with the Examiner that Yajima et al. fails to teach or suggest the crystal structure recited in Applicants' claims 32, the recoil permeability recited in claim 36, and the axis ratio recited in claim 37.

The Examiner has alleged in the first full paragraph on page 5 of the outstanding Office Action that "in view of the fact that Yajima's alloy is made by a process that is **similar** to, if not the same as, applicants' process of making the instantly claimed alloy, Yajima's alloy would be expected to posses all the same properties as recited in the instant claims" (emphasis added). Then in the same paragraph, the Examiner quotes MPEP § 2112.01, "[w]here the claimed and prior art products ... are produced by **identical or substantially identical** processes, a prima facie case of either anticipation or obviousness has been established" (emphasis added).

First, the Examiner has used the wrong standard. The Examiner has used a standard that her refers to as "**similar** to, if not the same as" standard instead of the "identical or **substantially identical** process" as required by the MPEP and case law (e.g. In re Best, 195 USPQ 430, cited by the Examiner).

Second, the process used in the present application is neither **similar** nor **substantially identical** to the process used in Yajima et al. Yajima et al. teaches the

use of **melt spinning** process, **NOT** a **strip casting** process used in the present invention. The many significant differences between the strip casting process and melt spinning process are discussed, for example, in paragraphs nos. 72, 76-79, 96, 121-124, 148, 149, 176-178, 187, 188, 202, 209, and 214 of Applicants' originally filed Specification.

For the Examiner's benefit, the clear differences between the strip casting process and melt spinning process will also be summarized in the next two paragraphs.

A strip casting process is a technique of making a strip of rapidly solidified alloy by bringing a melt of an alloy into contact with the surface of a chill roller without using a nozzle and rapidly cooling and solidifying the melt. According to preferred embodiments of the present invention, the melt is rapidly cooled and solidified using a chill roller that rotates faster than that used for a known strip casting process. Compared to a ***melt spinning process*** in which a melt of an alloy is ejected through a nozzle orifice onto the surface of a chill roller, the strip casting process results in a much lower cooling rate. The strip casting process excels in mass productivity because this process provides a thin-strip of rapidly solidified alloy with relatively large width and thickness.

The thickness of a rapidly solidified alloy is closely related to the cooling rate in the step of cooling the melt. Conventionally, it has been considered that a cooling rate for a rapidly solidified alloy for a nanocomposite magnet should be high enough to suppress crystal growth during the solidifying step. Therefore, the thickness of the solidified alloy is typically thinner than 50 μ m. A rapidly solidified alloy having a thickness between 50 μ m and about 200 μ m could not be mass-produced without the knowledge that Ti suppresses α –Fe growth during a rapidly solidifying step.

In addition, the many and clear differences between the strip casting process and melt spinning process are set forth in great detail in the present Applicants' originally filed Specification as noted above.

Thus, in contrast to the Examiner's allegation, Yajima's alloy is made by a process that is totally different from and not even similar to the process of the present

invention. Furthermore, such process of Yajima et al. could not have produced the unique features recited in Applicants' claims 32, 36 and 37, noted above.

Accordingly, it would not have been obvious to one of ordinary skill in the art that Yajima et al. teaches or suggests the feature of "wherein in the alloy, a crystal structure is located on each of two surfaces thereof that cross a thickness direction approximately at right angles" recited in Applicants' claim 32, the feature of "wherein in the alloy, a crystal structure is located on each of two surfaces thereof that cross a thickness direction approximately at right angles" recited in Applicants' claim 36, or the features of "wherein a ratio of a major-axis dimension of the powder to a minor-axis dimension thereof is between about 0.3 and about 1" and "wherein the powder has a coercivity H_{cJ} of about 600 kA/m or more" as recited in Applicants' claim 37.

Therefore, the Examiner has failed to establish a *prima facie* case of obviousness of the claimed invention because all the claim limitations must be taught or suggested by the prior art. See In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) and MPEP § 706.02(j) and § 2143.03. Here, there is no such teaching or suggestion in the prior art of Applicants' claimed features including the feature of "wherein in the alloy, a crystal structure is located on each of two surfaces thereof that cross a thickness direction approximately at right angles" recited in Applicants' claim 32, the feature of "wherein in the alloy, a crystal structure is located on each of two surfaces thereof that cross a thickness direction approximately at right angles" recited in Applicants' claim 36, or the features of "wherein a ratio of a major-axis dimension of the powder to a minor-axis dimension thereof is between about 0.3 and about 1" and "wherein the powder has a coercivity H_{cJ} of about 600 kA/m or more" as recited in Applicants' claim 37.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 32, 36, and 37 under 35 USC § 103(a) as being unpatentable over Yajima et al.

Applicants agree with the Examiner that Ma et al. fails to teach or suggest the

features of the thickness of the alloys recited in Applicants' claims 32, 36, and 37, the crystal structure recited in Applicants' claims 32, the recoil permeability recited in claim 36, and the axis ratio recited in claim 37. The Examiner has relied upon Yajima et al. to allegedly cure these various deficiencies.

First, the Examiner has alleged in paragraph no. 8 on page 6 of the outstanding Office Action that "Ma teaches that the disclosed alloy is made by a process of **melt spinning** which is optionally followed by a heat treatment step. This is the same process disclosed by the applicants to make the instantly claimed alloy and powder ..." (emphasis added). The Examiner has clearly mischaracterized the present invention because, as noted above, the present invention uses a **strip casting** process, **NOT** a **melt spinning** process.

Second, as noted above, the **melt spinning** process of Ma et al. is neither **similar** nor **substantially identical** to the **strip casting** process used in the present invention, and could not produce the features recited in Applicants' claims 32, 36 and 37. Yajima et al. does not cure these clear deficiencies of Ma et al. since, as noted above, Yajima et al. fails to teach or suggest Applicants' claimed features including the feature of "wherein in the alloy, a crystal structure is located on each of two surfaces thereof that cross a thickness direction approximately at right angles" recited in Applicants' claim 32, the feature of "wherein in the alloy, a crystal structure is located on each of two surfaces thereof that cross a thickness direction approximately at right angles" recited in Applicants' claim 36, or the features of "wherein a ratio of a major-axis dimension of the powder to a minor-axis dimension thereof is between about 0.3 and about 1" and "wherein the powder has a coercivity H_{cJ} of about 600 kA/m or more" as recited in Applicants' claim 37.

For the reasons described above with respect to the clear and significant differences between a melt spinning process and a strip casting process, Ma et al. and Yajima et al., applied alone or in combination, completely fail to teach or suggest Applicants' claimed invention recited in claims 32, 36 and 37.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 32, 36, and 37 under 35 USC § 103(a) as being unpatentable over Ma et al. in view of Yajima et al.

Applicants respectfully submit that Yajima et al. and Ma et al., applied alone or in combination, fail to teach or suggest the unique combination and arrangement of elements recited in claims 32, 36, and 37 of the present application. Claims 33-35 depend upon claim 32 and are therefore allowable for at least the reasons that claim 32 is allowable.

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

To the extent necessary, Applicants petition the Commissioner for a THREE-month extension of time, extending to September 11, 2003, the period for response to the Office Action dated March 11, 2003.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

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